Meat and Milk Improve Development of Malnourished Children

Animal foods eliminate a daunting nutritional threat to the world's children.

Analysis of data collected by a Child Nutrition Project in rural Kenya shows a small amount of animal source foods added to the diet of malnourished schoolchildren leads to a statistically significant improvement in:

- cognitive function
- physical activity
- positive behaviours
- classroom attention
- physical growth
- biochemical micro-nutrient status.

Photograph of children in Embu, Kenya, by Brad Collis, WordWrite, Australia.

Research has confirmed that adding modest quantities of meat and milk to the diet of malnourished children improves their health and productivity as well as growth, activity and learning. Increasing dietary energy alone, through consumption of greater amounts of non-animal-source foods, does not improve micronutrient nutritional status or cognitive function.

Previous research has shown that an intake of animal-source foods improves both physical and mental development of children. A study in the 1980s conducted by the Global Livestock-Collaborative Research Support Program (GL-CRSP), funded by the U.S. Agency for International Development, concluded that finding ways to increase animal foods in the diets of poor people is essential to improving child growth, cognitive development and health. This maximises their ability to learn, take initiative and assume leadership.

A GL-CRSP Child Nutrition Project, conducted between 1984 and 1986 and again between 1998 and 2000 with primary schoolchildren in Embu, Kenya, has now confirmed that animal products, fed daily in school, reduce micronutrient malnutrition and improve cognitive performance.

The quality of the typical diet of the Embu schoolchildren, aged 6 to 9, is low. Starchy staples such as maize and rice provide most of the calories. Animal protein intake averages only 1.0%. One-third of the children were stunted (low height for age) or underweight (low weight for height). The prevalence of iron, zinc, vitamin A and B_{12} deficiencies and anemia were very high. Deficiencies in vitamin B_{12}, which is furnished almost exclusively by animal foods, have been implicated in decreased cognitive function.

Animal source foods are a compact source of high-quality protein and energy as well as readily absorbed micronutrients, particularly calcium and vitamin B_{12} from milk and iron and zinc and vitamin A from meat.

Supplementation with beef or milk was found markedly to improve vitamin B_{12} status of the Kenyan schoolers. At baseline, 38% of children had severe and 30% of children had moderate vitamin B_{12} deficiency. After 2 years of school feeding, severe vitamin B_{12} deficiency in the meat group was nearly eliminated and greatly reduced in the milk group.

This research suggests that meat provides a more bioavailable source of micronutrients than other supplements. Meat has a higher energy density than other supplements and provides a combination of iron, zinc and heme protein that it is believed contributed to measurable gains in micronutrient status, facilitating gains in specific domains of cognitive functioning. Past studies suggested that animal source foods were an important correlate of cognitive performance, but this is the first experimental demonstration of the efficacy of meat supplementation for child cognitive performance.

The research highlights the importance of animal source foods for malnourished children in developing countries. School supplementary feeding programs that incorporate animal source foods are likely to have the most beneficial impacts on the cognitive development of young children.

The practical implications of these findings are large. The evil synergism between disease and malnutrition is the leading cause of death in children under 5 years of age in developing countries. Fully one-third of pre-school children in developing countries are malnourished. In countries like Kenya, which spend over a third of its budget on education, better-nourished children will be in better position to increase the returns on that heavy investment.

The easiest way for poor households to improve their diets is to keep livestock. But development of animal production systems has not received the attention deserved in micronutrient undernutrition. The major challenge is to optimise production and use of locally available sources of animal foods.

The Child Nutrition Project of the Global Livestock-Collaborative Support Program was established in 1997 and is built on a decade of research conducted by the Nutrition CRSP (USAID) in the 1980s. The project is directed by Dr. Charlotte Neumann. Contact her for five research briefs, published May 2002, on which this summary is based: cneumann@ucla.edu

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